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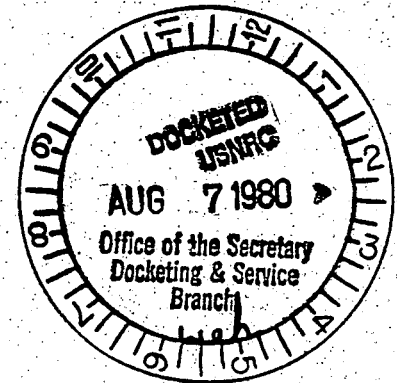
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July 16, 1980

John Ahearne, Chairman
Peter Bradford, Commissioner
Victor Gilinsky, Commissioner
Joseph Hendrie, Commissioner
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555



RE: Indian Point

Gentlemen:

We were informed that, on June 11, the Commission voted to permit the Indian Point plants to continue to operate on an interim basis pending the completion of adjudicatory hearings. By 2-2 vote, the Commission also rejected UCS's request to be heard prior to this decision. I am writing to urge your reconsideration of the decision to authorize interim operation.

SECY-80-283, the Report of the Task Force on Interim Operation of Indian Point, was produced in response to the Commission's order of May 30, 1980. The issues which it addresses are, to say the least, complex, and the results subject to substantial technical debate. UCS has not been given an opportunity to respond. Moreover, if the Reactor Safety Study -- the starting point and fundamental basis of most of the Task Force conclusions -- was "inscrutable," this report is largely opaque. It offers conclusions and briefly discusses methodology, but provides none of the underlying data or documentation of its analyses by which one could test its conclusions. Under these circumstances, it is hard to see how the Commission could have judged the validity of the Task Force conclusions.

Beyond the general opacity of the report, there are both general and specific criticisms which UCS would like to draw to your attention. First, to the extent that the Task Force relies on WASH-1400, it suffers from the same basic, essentially irremediable problems. For example, despite the staff's assertion that it has incorporated the lessons learned from the Lewis Group report, it has not corrected the fundamental flaw which contributed in greatest measure to the Lewis findings of enormous error bands in the probability analysis. That is, it has not done the kind of

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systems analysis necessary to reliably identify important common mode failure sequences. This is apparent from page 24 of the report. Common-mode failures not involving any of the WASH-1400 "dominant risk" scenarios would be overlooked. It should be noted that the Lewis Group concluded that failure to comprehensively identify common mode events added an uncertainty to WASH-1400's conclusions of up to a factor of one million. The Task Force has done very little towards reducing that uncertainty.

Another major criticism of WASH-1400 which applies to the Task Force report was the study's inability to estimate the importance of human factors. This looms particularly large since many of the interim "improvements" ordered at Indian Point are related to human factors. It is sometimes stated that even if the WASH-1400 methodology, or variations on it, do not produce reliable absolute probability figures, they are useful for comparing the relative safety of various designs and thus, could show whether Indian Point is more or less safe than other reactors. In fact, it is clear that plant-to-plant comparisons are not reliable unless all dominant failure modes have been identified. Thus, the inadequate treatment of common mode failures makes such comparisons of little value and misleading for decision-making.

Indeed, even the Task Force concedes the enormous uncertainty inherent in its assessment of the relative safety of the Indian Point design. It admits that the analysis "relies heavily on the judgment of the reviewer" both with respect to the accident sequences considered and the parts of the plants involved. (p. 26) Since no further information is provided beyond a list of the sequences, it is obviously not possible to assess the manner in which that judgment was exercised. There is simply no rational basis upon which to credit either the base-line estimate of the risk of a severe accident at Indian Point nor the remarkable assertion that "[t]he overall effect of the Indian Point improvements is estimated to be a three-fold reduction in the probability of severe core damage . . ." (p. 26) The Task Force implicitly concedes as much:

The changes committed to are clearly beneficial in reducing risk but it is questionable whether the factor of improvement, three, is statistically significant. The probabilities of severe core damage listed in table 7 are subject to at least a factor of 5 uncertainty in either direc-

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tion due to uncertainties in the data upon which all this analysis is based. Task Force Report p. 26. (Emphasis added)

It should also be emphasized that many of the "improvements" have not yet been accomplished. It is therefore not legitimate to credit them in evaluating the safety of Indian Point today.

Other statements attach greater uncertainty to the "CCDF's" -- figures 7 through 10 which purport to compare the risks for different designs:

WASH-1400 assigned an uncertainty of plus or minus a factor of five to analysis such as this. The Lewis Committee questioned that small an uncertainty. We believe it is prudent to consider that these curves have an uncertainty plus or minus, of about a factor of 10 at the higher probabilities and perhaps as much as a factor of 100 at the lower probabilities.^{1/} Id. at 32.

The crux of the matter is that the state-of-the-art of probabilistic risk assessment is not sufficiently well-developed in this context to yield meaningful results for comparing the safety of the Indian Point design to other plants. The staff concedes that the "design" half of the equation of design vs. site has far less reliability than the "site" half. (p. 35) In fact, we believe that the truth is stronger. While it is possible to evaluate for comparison purposes most risks associated with siting since population and demography are objectively quantifiable, it is simply not possible to make a technically supportable comparison of the design-related risks of various reactors, and certainly not within the few short weeks available to the Task Force.

This is absolutely crucial to judging the Task Force report, since its ultimate conclusion is that the worse-than-average site-related risks at Indian Point can be balanced

^{1/} UCS believes this understates the uncertainty.

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against the purportedly better-than-average design.^{2/} It is not legitimate to balance known site deficiencies against what are at best uncertain design "advantages." UCS believes that, properly interpreted, the Task Force Report supports the proposition that the Indian Point site is unacceptable.

It is appropriate at this point to look in more detail at the analysis of the Indian Point site. The Task Force choose six sites for comparison purposes. Four of these -- Indian Point, Zion, Limerick and Fermi, are among the very worst from one standpoint of population density. The justification for skewing the comparison in this way is not apparent. Subtle underemphasis of the extent to which the Indian Point site is worse than the average also results from use of phrases like "order of magnitude more risky." (p. 38) An examination of Tables 1 through 3 reveal the following: in the 1-10 mile radius, 7 plants have more than 100,000 people, only one plant (Indian Point) has over 200,000 but 71 of the 111 listed have under 35,000. Thus, there is a sharp dropoff in population density and the great majority of sites have far less people than a relatively small group of which Indian Point is the worst.

The same pattern is even more dramatically revealed as the land area in question is expanded. In the 30 mile radius (Table 2), 2 sites have close to 4 million persons (Indian Point and Limerick), 2 more plants have over 2 million but 99 of 111 have under 1 million and 76 under 500,000. Finally, in the 50 mile radius, Indian Point has 17 million. The next closest are Zion and Limerick at about 7 million. Eighty-three (83) sites are under 2 million and 58 under 1 million; the mean is about 1 million. Indian Point has 17 times more people within 50 miles than the mean site.

In this connection, the Task Force states that the risk of latent cancer is not significantly affected by population

^{2/} UCS strongly disputes the conclusion that the Indian Point reactor design is safer than average. We note that our detailed comments on these subjects were only briefly adverted to by the Task Force (p. 45-50) but never responded to, despite the Commission's explicit direction to the Task Force in item #4 of the May 30 order to "include consideration" of the "technical design comments received in response to the Commission's February 25 solicitation of comments. . . ."

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figures because the zone of interest is 200 miles and all plants would impact large cities at that distance. In our view this is misleading. The risk of latent cancer is certainly affected by the distribution of persons within the 200 mile radius. Thus, a site with 17 million people at 50 miles from the plant would present a greater risk than a site with 17 million people at 200 miles.

Finally, use of the log scale for the figures obscures the great differences between the sites, even assuming that the rest of the analysis were accepted. For example, Figure 1 shows that the probability of early fatality at Diablo Canyon is the same as the probability of 8,000 early fatalities at Indian Point. The probability of 1 early fatality at Palisades, chosen as the "average" plant, is the same as the probability of 2,000 fatalities at Indian Point. These are enormous differences which are obfuscated or elided by the use of the phrase "one order of magnitude."

Lastly, we would offer a brief comment on the question of the "need" for these plants. The information presented to you by DOE is that, without either Indian Point plant, the New York Power Pool would retain a 38% reserve margin for summer 1980 and a 49% reserve margin for winter 1980-81. These telling figures are then qualified by discussion of the special transmission problems which bear on system reliability. However, FPC recommended reserve margins are determined according to a complex systemspecific formula which specifically takes into account the probability of transmission and capacity failures. Curiously, DOE does not state what the FPC recommended reserve margin is for the New York Power Pool, but we would be exceedingly surprised if it even approached 38 or 49%.

Space, time and the conclusory nature of the report prevent us from offering a more detailed critique now. UCS believes that the real lesson to be drawn from the Task Force Report is that the Indian Point site is intolerable and that it poses a risk far greater than the average site. We also endorse the comments of NYPIRG submitted to you by telegram on July 15. In particular, it is almost unbelievable that the decision to allow Indian Point to continue to operate should be taken without consideration of the FEMA review of

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the status of emergency planning which has been completed but embargoed by the administration. We urge you to reconsider.

Very truly yours,

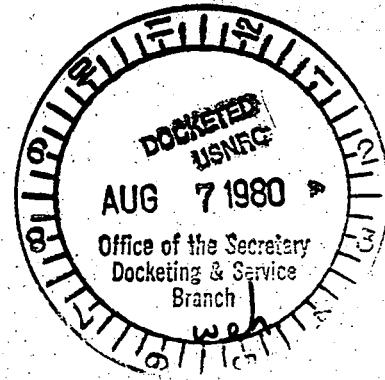
A handwritten signature in cursive script, appearing to read 'Ellyn R. Weiss', with a long horizontal flourish extending to the right.

Ellyn R. Weiss

ERW/lc

cc: Service list

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



COMMISSIONERS:

John F. Ahearne, Chairman
Victor Gilinsky
Joseph Hendrie
Peter A. Bradford

In the Matter of)
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)
CONSOLIDATED EDISON COMPANY OF NEW)
YORK, INC. (Indian Point, Unit No. 2))
)
POWER AUTHORITY OF THE STATE OF NEW)
YORK (Indian Point, Unit No. 3))
)
)

Docket Nos. 50-247
50-286

CERTIFICATE OF SERVICE

I hereby certify that copies of the Union of Concerned Scientists Reply to Licensees Motion for Reconsideration of that Portion of the Commission's Order of May 30, 1980, which Directs Adjudicatory Hearings, have been served this 5th day of August, 1980, to the following parties:

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Ellyn R. Weiss